The etiology of the asthma in the reported cases was unknown in most instances; all authors commented on the cyanosis and dyspnea present in each case. The subcutaneous emphysema usually appeared after the individual had been suffering with a violent attack of bronchial asthma, lasting from several hours up to six days, as in Case 13 on the chart. In all reports the air was absorbed within ten days and there were no sequelae.

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REFERENCES

1. Kelman, Sarah R.: Experimental Emphysema, Arch. Int. Med., 24:332 (Sept.), 1919.
2. Joannides, Minas, and Tsoulos, George D.: The Etiology of Interstitial and Mediastinal Emphysema, Arch. of Surg., Vol. 21, No. 2, p. 333 (Aug.), 1930.
3. Sheldon, John M., and Robinson, William D.: Subcutaneous Emphysema in Asthma, J. A. M. A., 107:1884 (Dec. 5), 1936.
4. Kirsner, J. B.: Subcutaneous Emphysema in Bronchial Asthma, J. A. M. A., 108:2020 (June 12), 1937.
5. Watson, F. S.: Emphysema of Cellular Tissue Due to Asthma, Brit. M. J., 2:699 (Oct.), 1885.
—Calverley, E. J. G.: Interstitial Emphysema Beneath the Deep Cervical Fascia as a Complication of Asthma, *Ibid.*, 2:1899 (Dec.), 1902.
—Whitby, C. J.: Subcutaneous Emphysema in a Case of Spasmodic Asthma, *Ibid.*, 1:73 (Jan.), 1905.
—Kahn, I. S.: Subcutaneous Emphysema in a Case of Bronchial Asthma, J. A. M. A., 88:1883 (June 11), 1927.
—MacDermot, H. E.: Subcutaneous Emphysema in Asthma, Canad. M. A. J., 21:708 (Dec.), 1929.
—Scheltema, M. W.: En geval van huidemphyseem door asthma, Geneesk. gids, 9:1076-1079 (Nov. 13), 1931.
—Artagaveytia, A., and Zanzi, L. A.: Enfisima subcutáneo en el curso de un acceso de asma, Rev. de tuberc. d. Uruguay, 2:428-445 (Nov. and Dec.), 1932.
—Kruysveldt, C. S.: En geval van uitgebreid huidemphyseem bij asthma bronchiale, Nederl, tijdschr. v. geneesk., 77:5380-5382 (Dec. 2), 1933.
—Davidson, F. C.: Subcutaneous Emphysema in a Case of Bronchial Asthma, Lancet, 1:1230 (June 9), 1934.
—Pastorino, A.: Asma y enfisema, asma y neumotorax, Rev. de tuberc. d. Uruguay, 4:256-259, 1934.
6. Dietrich, Harry F.: Subcutaneous Emphysema in Asthma, Calif. and West. Med., 47:329-331 (Nov.), 1937.

DISCUSSION

J. J. SINGER, M. D. (2007 Wilshire Boulevard, Los Angeles).—The four cases of subcutaneous emphysema described by the authors indicate the anatomic pathway air takes when a rupture of pulmonary tissue occurs and no pneumothorax is present.

Ballon and Francis in *The Archives of Surgery*, December, 1929, Vol. 19, Part II, showed the course air may take in the production of mediastinal and subcutaneous emphysema. It may spread subfacially between the costal pleura and the intrathoracic fascia. A rupture of an emphysematous bleb, which is the usual cause of interstitial emphysema, may allow air to dissect at first interstitially and then to the hilum of the lung; thence into the mediastinum subfascially and over the entire body. The air may dissect along the trachea to the floor of the mouth—it may follow the sheaths which surround the larger blood vessels; the axillary and femoral vessels may be compressed. Occasionally it may extend retroperitoneally and outline the kidneys.

The symptom of dyspnea is to be expected if the mediastinum retains the air; a tamponade of the large vessels occurs, likewise pressure on the trachea.

The number of reported cases are few, but undoubtedly many minor cases occur which escape detection.

Unless the emphysema is producing alarming symptoms no treatment is indicated, but at times incisions in the subcutaneous tissue may permit a rapid elimination of the air.

HUGH K. BERKLEY, M.D. (1136 West Sixth Street, Los Angeles).—Subcutaneous emphysema as a complication of a severe asthmatic attack apparently is a rare condition. This seems amply confirmed by the author's review of the literature.

With full appreciation of the severity of the attacks in some cases of asthma, it is to be wondered that it does not more frequently occur. One is lead to suspect that more cases occur, but that they have passed unrecognized or perhaps have not been reported.

Similar attacks of subcutaneous emphysema occur in pneumonia, the mechanism of production being precisely the same as the mechanism described in asthma.

OBSTETRIC OBSERVATIONS*

ON SOME IDEAS AND PROCEDURES NOT COMMONLY FOUND IN THE TEXTBOOKS

By BENJAMIN BAKEWELL, M.D.
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DISCUSSION *by Donald G. Tollefson, M. D., Los Angeles; Frank W. Lynch, M. D., San Francisco; Edward N. Ewer, M. D., Oakland.*

IT is my purpose in presenting these notes to call attention to some observations I have made or experiences I have had in the care of patients over a period of many years which I have not found mentioned in the current textbooks. It happens to any observing physician that instances or conditions will arise in the course of his contacts with patients in which some minor or relatively unimportant experiences may provide him with an observation or procedure which he is able to use again to advantage in the treatment of his cases. I do not mean to suggest that these observations are necessarily original with me or have not been repeatedly noted by others under the same circumstances, but I do believe that since they have not found their way into the current records, they may be of sufficient value to make it worth while to record them.

As my interest during recent years has been mainly in the field of obstetrics, most of these observations are confined to this subject.

MECHANICS AND OBSTETRICS

I will open with the positive statement that a good obstetrician must be a good mechanic, and that study, training and experience, necessary as they are, do not make an obstetrician unless he has the aptitude to envision his problem with the eye and mind of the natural mechanic. We have all seen well-read and well-trained surgeons who can ably discuss pathology, diagnosis and treatment, yet who cannot operate with the same ability because they cannot learn to use their hands or a tool, and have no vision of the mechanical procedure involved. This is particularly true of the obstetrician. The delivery of the fetus through the birth canal is a complicated mechanical procedure; and where it is necessary to give artificial aid, this must be done by inducing from below the same mechanical maneuvers which must be pictured, step by step, in the mind and by the hand of the operator in order that there may be a successful conclusion.

How many times have we seen the doctor push on the forceps, drag out the baby, injure the fetal

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skull, traumatize the birth canal, himself completely satisfied if the child breathes and the mother lives, and throughout the procedure wholly unconscious that he has not done a skillful and satisfactory delivery because he does not see the problem with the eye and mind of the natural mechanic. Let us say again that the good obstetrician must be a good mechanic.

BEHAVIOR COMPLEX

The significance of the behavior complex in diagnosis of the stage of labor:

The behavior of the patient during her pains may be used by the observer to indicate roughly the stage of labor. In the early period of labor the patient may complain vociferously, but it is significant that her facial expression remains placid. She smiles and is cheerful between her pains while complaining of their severity. However, as time goes on, with dilatation progressing and the fetus sinking lower and lower in the pelvis, her face loses its placidity and becomes distorted with suffering and, notably, she loses her smile. A smiling woman in labor is a woman in the early first stage, regardless of the evidence of nurses and interns. This is a rule that seldom proves false.

In my early years of home deliveries, before the days of rectal examinations, and where I did not feel too sure of my asepsis, I was wont to depend on the character of the pains and their effect on the behavior of the woman, aided by external examination to determine the stage of labor, and was seldom disappointed in my prognosis.

AMNESIA

It is impossible for a normally sensitive individual not to be swayed in his judgment by suffering, and by the importunities of a patient's family. Such influences frequently result in too early interference in labor, which is not justified by the condition of the patient. Many mothers are delivered instrumentally before complete dilatation of the cervix because of the cries and complaints of the laboring woman and the prayers of her family, "Do something, Doctor!"

One can withstand these importunities for a time, but gradually they wear you down. "All right, put her on the table and call the anesthetist." On go the forceps, and the cervix is widely torn; while your cooler judgment says, "Hands off!" for another hour at least. This exemplifies a very practical advantage of amnesia in labor. The patient, though sometimes restless during her pains, sleeps quietly between them and it is quite obvious even to her family that she is not more than semiconscious of her condition, and she and her family will be satisfied to wait the normal progress of the labor so that the accoucheur is permitted to use his judgment without distraction or coercion.

This is an observation that I have never seen mentioned elsewhere, but that must have been noted consciously or unconsciously by everyone who uses amnesia and should, I believe, be given its due importance in weighing the evidence for or against "twilight sleep."

DIAGNOSIS OF PRESENTATIONS

In making a diagnosis of presentation, one should observe the contour of the woman's abdomen. When the vertex is in the occiput posterior position there is frequently a definite dip or hollow in the otherwise smooth curve just above the pubes. This is not present in the normal anterior presentation. This hollow resembles closely the dip in contour just above a distended bladder, but it is lower on the abdomen. The condition is probably occasioned by the physical contour of the anterior surface of the fetus, with the brow flexed over the chest in contradistinction to the smooth contour of the posterior aspect, the curved spine, and the occiput.

The rectal examination made to determine the presence or absence of dilatation of the cervix is frequently a very unsatisfactory procedure. If the cervix is effaced—that is, flattened out to almost paper thinness—it may be quite impossible to feel its margin through the rectovaginal tissue, so that a determination of the degree of cervical dilatation by this means is impossible. In these cases one should note with the finger the feel of the sutures of the fetal skull. If they can readily be outlined, one is feeling through the open cervix. If they are obscured or absent to the finger, the cervix is interposed and, therefore, cannot be dilated. By passing the finger over the sutures, one can then determine, by noting when the sutures become obscured, the degree of dilatation. This maneuver should be kept in mind during every rectal examination, and will often clear up an otherwise difficult problem.

INDUCED LABOR

For one cause or another it is frequently necessary to induce labor. The accepted method is to administer certain oxytoxics, and at the calculated height of their activity to rupture the membranes. This procedure sounds quite simple, but when the vertex is high and the membranes are stretched over it with little or no intervening fluid, one may insert an instrument, attempt to rupture the membranes, withdraw the instrument, and if no fluid drips out of the vagina there is no certain evidence that the membranes actually are ruptured. This uncertainty may be promptly allayed by the following procedure: Insert the dressing forceps through the cervix, pressing the tip lightly against the presenting vertex. Open the forceps slightly, close and withdraw them. If the membranes have been ruptured, there will be found in the tip of the forceps a few little fine hairs from the scalp of the fetus. This definitely settles the question.

ON CUTTING THE CORD

It is commonly advised that immediately after the delivery of the child we should wait until the cord stops beating before severing it, with the belief that the child continues to receive blood from the placenta until this occurs. This seems to me to be an illogical conclusion. Before birth there is certainly sufficient blood in the fetus and placenta for both, and after delivery the body of the fetus continues to hold all the blood it needs while that in the placenta is superfluous for it. In fact, if it were passed into its body, which is doubtful, it would be immediately destroyed. It is my practice to cut the cord as soon as is convenient and I have not noted any harmful effects.

EPISIOTOMIES

In certain cases of spontaneous delivery in which the patient is receiving respiratory amnesia during her pains, it is thought wise to perform an episiotomy. Under ordinary circumstances this is too painful a procedure to attempt without full anesthesia. It may, however, be done as follows without the realization of the patient that anything is being done by her doctor. Place the open scissors over the site of the proposed episiotomy between her pains, then as the next pain reaches full intensity and the perineum distends, the partially anesthetized patient being thereby distracted, make a quick partial cut. Repeat this procedure during three or four pains, and the full episiotomy will be accomplished with the patient quite unaware that it has been done. Thus you avoid full anesthesia with delay from the cessation of her pains and at the same time her resentment at being subjected to a painful procedure.

MEASUREMENTS

To most people linear measurements are rather vague, especially when expressed in the metric system. How many of us can mark off centimeters with any degree of accuracy without a scale? This is the reason for the custom of measuring lesions by comparison to familiar objects, such as the lemon or walnut. It is not necessary to point out the absurdity of such a method of measurement. I have found that the average male hand, measured across the second joints of the fingers, is approximately eight centimeters in width, or two centimeters for each finger. This makes a convenient and fairly accurate scale quickly applied to any object, never left in your other suit of clothes, and one which may be used by the surgeon when scrubbed and operating. I have found this very useful.

The above suggestions and procedures are offered for what they are worth. They have all been used repeatedly and have proved valuable to me. Whether they are worth passing on to others, I leave to you.

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DISCUSSION

DONALD G. TOLLEFSON, M.D. (511 South Bonnie Brae Street, Los Angeles).—These observations, based on a long clinical experience, are always worth recording, and Doctor Bakewell's essay should serve as a stimulus to others for similar reports. The obstetrician must not only be a good mechanic, but he must be thoroughly familiar with the mechanism of labor. Failure to appreciate what can be accomplished under the proper conduct of the first stage of labor will invariably and unnecessarily increase the operative incidence.

There is no longer any argument to prevent the judicious use of analgesia in labor. Being able to assure the patient that the most of her labor will be erased from her memory makes for a more normal antipartum period. It also prevents, to a large degree, the nervous reaction following delivery.

The diagnosis of presentation by abdominal, as well as rectal and vaginal examination, has too often been neglected. The diagnosis of occiput posterior position is one of the most common findings by consultants in prolonged labors. Labors in such instances will be longer, but if recognized early their management will not be difficult. One point concerning the prognosis of labor in malpresentation or position is the accessibility of the cervical opening to the examining finger. Whenever it is eccentrically placed, laterally, or deeply posterior, progress will be slow. This observation also suggests some abnormality of presentation, position, flexion, or extension.

We have long been taught that the cord should not be cut until after pulsations have ceased; and yet it has been quite definitely shown that the increase of blood in the fetus is not affected by severing the blood supply of the fetus. It does seem, however, that after the patient delivers, if the gas anesthetic is discontinued some benefit may be derived by the administration of oxygen while the cord is still pulsating.

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FRANK W. LYNCH, M.D. (University of California Medical School, San Francisco).—Doctor Bakewell gives us much philosophy in his paper as well as a number of suggestions of value to the great mass of physicians practicing obstetrics. One can readily see that Doctor Bakewell learned these lessons from experience, and not from his teachers in the Medical School, or from any of the many textbooks which doubtless he has kept adding to his library these many years. The paper shows that the author has been a keen observer. While he does not say so, I have no doubt but that he learned in the school of hard knocks each point he discusses so well—probably while driving home and thinking over every detail of some case which had not gone so well as he hoped it would. Hindsight is a great teacher if we develop it properly. We all remember that Oliver Wendell Holmes said he always made his best speeches in his two-wheeled chaise while driving home from the dinner.

The practice of obstetrics, even more than nearly any other branch of medicine, compels its students to think logically and quickly from signs and findings. If the findings prove incorrect, the showdown comes usually so quickly and dramatically that the obstetrician cannot dodge responsibility for error. In most fields of surgery, days, weeks, or even months, elapse between treatment and the final result. Then, if the treatment was incorrect, Time has greatly softened the blow to the physician's ego; there has been sufficient time for him to forget his errors. There is no rude shock as the responsibility is thrust into his lap with a dull thud and sickening sound, as occurs when an obstetric case goes wrong—unless by chance you are a dull yokel who, as Doctor Bakewell says, feels completely satisfied if the child breathes and the mother lives after a forceps delivery in which the fetal skull is injured, and the birth canal very badly traumatized. There is no hope for that type of physician, yet there are many of them; they practice by virtue of license by the State Board of Medical Examiners; and do everything in medicine they wish to do—even as you and I.

Several times yearly I read in journals articles by physicians commending certain "knacks" as details in treatment which they have worked out for themselves, probably because most physicians have been, by necessity, self-taught in the practice of medicine. Doctor Bakewell has worked out points of great value; yet, like many other things in life, they are not likely to prove of greatest value to those who need them most: the beginner in obstetrics who needs them most will not know enough to recognize their great value. Yet ignorance of obstetric art does not prevent the beginner from accepting the care of obstetric cases, even though he has seen very few such in his medical school and hospital work: moreover, he may entertain only a dislike for the subject. Many physicians accept obstetric cases because they are the first work that comes to them, knowing that they may be the nucleus of a large and lucrative practice if the women are normal and deliver spontaneously in L. O. A. Naturally, they feel that they should give the patient some form of twilight sleep: they have no conception of the complications that may ensue from heavy medications during labor.

It is useless to say that medical schools should compel each student before graduation to have at least enough practical experience in obstetrics to warrant his undertaking the care of a normal case. Few agree as to how many cases that should be. Personally, I feel there should be at least seventy-five cases, yet most of the "State Board" require only twelve to fifteen. However that may be, the fact remains that medical schools in this country never will have funds sufficient to teach adequately any of the apprentice courses in medicine. Of the many nations rated as civilized, only Sweden gives such courses. Each student graduating in that country is compelled to obtain sufficient experience in obstetrics, not only to handle the ordinary

obstetric case, but also to treat properly a great many complicated cases. The effect of such treatment is reflected in its national maternal mortality.

The State Boards for Medical Licensure hold the key to the situation. The inadequate clinical prerequisites for obtaining the legal right to practice can be modified if the profession ever wakens to realize that the present methods are all wrong. Those who would shrink from undertaking such a herculean task may be stimulated a bit by the thought that if our country inaugurates state medicine it will do so because the nation has at last realized that the maternal mortality of the United States is very much greater than it has any right to be.

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EDWARD N. EWER, M. D. (411 Thirtieth Street, Oakland).—I agree with Doctor Bakewell that the behavior of the patient is important in the diagnosis of the stage of labor. I have known delivery-room supervisors who could give more valuable information to the absent obstetrician after studying the character of a few pains than they could after making a rectal examination.

If untoward events of the labor necessitate exact checking of position and stage, a thorough vaginal examination is imperative. It can be accomplished with a high degree of asepsis, and is reliable in contrast to the guesswork of rectals.

About cutting the cord, I think it is now done immediately more often than twenty-five years ago. Waiting till pulsations stop, serves no useful purpose. Cutting it at once and allowing the placental end to bleed in the absence of another baby, is thought to hasten placental separation. Also the baby can be cared for without delay.

And this brings up for criticism the present-day practice of the initial cleansing of the baby. If scrubbed with soap and water, its rectal temperature will often drop two degrees centigrade. If wrapped up warmly and not bathed, the vernix will be absorbed in twelve to eighteen hours, the skin will be smooth and satiny, and the incidence of jaundice will be reduced to one per cent.

The vernix is not a filth product. It is a better ointment than can be compounded in a drug store. What possible good can vegetable and mineral oils do? Vernix is probably absorbed by the infant in utero, and if present at birth its cholesterin and other ingredients are still of value. I began this plan, sponsored by Keiffer of Brussels, on my service in the Alameda County Hospital ten years ago; eight thousand infants have now been so treated in this institution, and there has been a minimal occurrence of skin irritations and rashes.

In spite of Hippocrates' aphorism, "Life is short and the art long; the occasion fleeting; *experience* fallacious, and *judgment* difficult," we can on occasion turn with profit from the deluge of statistics the present medical literature vogue and listen to the opinions of those, like Doctor Bakewell, who have behind them painstaking years of thoughtful observation.

ADRENAL CORTEX IN TREATING CHILDHOOD ASTHMA: CLINICAL EVALUATION OF ITS USE*

By F. M. POTTENGER, JR., M.D.
AND
F. M. POTTENGER, M.D.
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DISCUSSION *by E. Kost Shelton, M. D., Los Angeles; Leland Hunnicutt, M. D., Pasadena.*

WHEN one faces a therapeutic problem he is inclined to try to find a single approach to its solution. Inasmuch as vital processes are complex, a single measure rarely accomplishes the end in view. Insulin simplifies the control of the diabetic, but it is far from commanding the full confidence of the physician in treating diabetes. Epinephrin has long been used in the treatment of asthmatic paroxysms, but we now find that crude extract of the adrenal cortex is an important adjunct in restoring the physiologic balance of the allergic patient. The acquiring of a comprehensive understanding of asthma has probably been delayed because we have had our minds too narrowly directed to its allergic nature. Because asthma is accepted as an allergic disease, it is natural to assume that its cause is some allergen. This thought has dominated the minds of medical men almost to the exclusion of all other ideas. The fact that the patient's general physiology might be an important part in the etiology of asthmatic symptomatology has not been sufficiently emphasized.

RECENT TREATMENT OF ASTHMA

For two decades the principal treatment of asthma has consisted of treating paroxysms with epinephrin, and attempting to desensitize the patient to specific allergens; of withdrawing the offending allergens; or of removing the patient from the environment in which the allergens are found.

A great deal of progress has been made by following this line of therapy. Many patients have been freed from their distressing paroxysms, and not a small percentage have procured a more or less permanent relief.

ASTHMATIC SYNDROME

The asthmatic syndrome is one of vegetative dysfunction. All allergies in their final analysis are due to cells whose physiologic balance is disturbed, which means that their permeability is altered. This in turn means that their function is more readily stimulated than normal.

Sensitization of cells in case of allergies may be caused by protein gaining access to the tissue, and requiring cellular digestion. Body cells are normally endowed with a power to digest proteins and accomplish it by producing antibodies, which are fixed to the cells and react with more or less violence when the same foreign protein again finds its way into the tissues. When once this function has become established it may remain for a long period of time, and may be very active when the allergens to which the cells form antibodies contact them, or when stimulated by other forces. It is probable that cells digest much protein without developing a pathologic degree of sensitization. We infer this from the fact that protein is known to enter the tissues without causing symptoms. Parenteral digestions as a normal function of cells may be more active in protecting the body than is realized. This suggests that the relief of pathologic allergies might be brought about physiologically by substances which will reduce the permeability of the affected cells.

Allergies are relieved by increasing the antagonistic effects of the sympathetic nervous system in such conditions as asthma and hay fever, either by central stimulation or by using the sympathicotropic hormone from the adrenal gland; by lowering parasympathetic action by the use of atropin; by lowering the potassium intake and increasing

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